AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A system for monitoring an optical output/wavelength of a light beam emitted from a laser source, comprising:

a laser source control means for controlling the laser source, wherein the light beam travels along a propagation path with a divergence angle with respect to ~~on~~ an optical axis;

an optical output monitoring unit located within the divergence angle of the light beam for receiving a portion of the light beam and for sensing an intensity of the light beam at a predetermined location for receiving predetermined portions of the light beam, thereby obtaining an optical output signal;

a filtering unit for filtering the light beam;

an optical wavelength monitoring unit located within the divergence angle of the light beam for receiving the other portion of the light beam not shielded by the optical output monitoring unit and for sensing the wavelength generated from the filtering unit, thereby obtaining a wavelength signal;

a thermo-electric cooler (TEC) control means for controlling a TEC in order to constantly maintain the laser source to have a predetermined temperature;

a temperature control means for controlling a heater and a thermistor to set an etalon to a predetermined temperature independently on the maintained temperature of laser source by the TEC, wherein the heater is attached on the filtering unit on the air gap space on the TEC and the thermistor is attached on the heater;

a comparison means for comparing the optical output signal and the wavelength signal; and

a processing means for comparing values of the compared signals with a preset value to control an input current or a temperature of the laser source.

2. (Previously Presented) The system as recited in claim 1, further comprising a temperature monitoring means for sensing an external temperature of the filtering unit in case it is unnecessary to control the temperature of the laser source.

3. (Currently Amended) The system as recited in claim 1, wherein the system includes:

a collimation unit for adjusting ~~a~~ the divergence angle of the light beam outputted from the laser source;

a first mounting unit for mounting the optical output monitoring unit;

a second mounting unit for mounting the optical wavelength monitoring unit;

a first alignment unit for aligning the optical output monitoring unit, the filtering unit, the optical wavelength monitoring unit, the first mounting unit and the second mounting unit, and for minimizing a heat conducted from a heater to the optical output monitoring unit, the filtering unit, the optical wavelength monitoring unit, the first mounting unit and the second mounting unit, the first alignment unit having a metal pattern to process an electric signal;

a heating unit for changing a temperature of the filtering unit;

a first temperature sensing unit for sensing a temperature of the laser source;

a second alignment unit for aligning the laser source, the optical output monitoring unit, the filtering unit, the optical wavelength monitoring unit, the first mounting unit and the second mounting unit; and

a second temperature sensing unit for sensing a temperature of the filtering unit.

4. (Canceled)

5. (Previously Presented) The system as recited in claim 3, wherein the predetermined location being adjusted in a horizontal direction with respect to the light beam.

6. (Previously Presented) The system as recited in claim 3, wherein the first alignment unit makes all parts for monitoring the optical output/wavelength be assembled as an integrated structure by using a metal-patterned substrate, and the first alignment unit enables to adjust an optical alignment by moving the integrated structure while monitoring the optical output/wavelength

7. (Previously Presented) The system as recited in claim 3, wherein the heating unit is controlled by the temperature control means together with the second temperature sensing unit, thereby maximizing a transmission characteristic of the filtering unit and a wavelength monitoring capability.

8. (Currently Amended) The system as recited in claim 1, wherein the processing means compares a ratio of the signal monitored at the optical output monitoring unit and the signal monitored at the optical wavelength monitoring unit with the present the input current or the temperature of the laser source, the processing unit having a program to compare ~~each~~ a target wavelength channel with a corresponding preset value for monitoring and stabilizing ~~each~~ a channel wavelength.

9. (Currently Amended) An apparatus for monitoring an optical output/wavelength, comprising:

a laser source for generating a laser beam according to a control signal outputted from a laser source control means;

a collimation means for adjusting a divergence angle of the laser beam outputted from the laser source;

an optical output monitoring means located within the divergence angle of the laser beam for receiving a portion of the laser beam and for sensing an intensity of the laser beam outputted from the collimation means at a predetermined location for receiving predetermined portions of the laser beam, thereby obtaining an optical output signal;

a filtering means for filtering the laser beam outputted from the collimation means;

an optical wavelength monitoring means located within the divergence angle of the laser beam for receiving the other portion of the laser beam not shielded by the optical output monitoring unit and for sensing the wavelength generated from the filtering means, thereby obtaining a wavelength signal;

a first mounting means for mounting the optical output monitoring means;

a second mounting means for mounting the optical wavelength monitoring means;

an alignment means for aligning the optical output monitoring means, the filtering means, the optical wavelength monitoring means, the first mounting means and the second mounting means and for minimizing a heat conducted from a heater to the optical output monitoring means, the filtering means, the optical wavelength monitoring means, the first mounting means and the second mounting means in sequence, the alignment means having pattern to process an electric signal;

a heating means for changing a temperature of the filtering means and being disposed below a bridge-shaped structure to minimize a path of a heat conduction between the heating means and an exterior; and

a temperature sensing means for sensing a temperature of the heating means, to thereby control the temperature of the filtering means.

10. (Currently Amended) The apparatus as recited in claim 9, wherein the collimation means adjusts the divergence angle and an intensity of the laser source and is aligned at a predetermined position of a laser beam so that the laser beam shielded by the optical output monitoring means is less than a predetermined ratio with respect to the~~a~~ total laser beam.

11. (Original) The apparatus as recited in claim 10, wherein the predetermined ratio is substantially less than 50%.

12. (Original) The apparatus as recited in claim 9, wherein the alignment means uses a substrate having metal patterns formed on both surfaces thereof, in which one metal pattern is used for assembling parts and the other is used for optically aligning the assembled parts with the laser source while monitoring the signal.

13. (Cancelled).

14. (Original) The apparatus as recited in claim 9, wherein the heating means is disposed on the filtering means which is formed over the alignment means so that the heat conducted from the heating means to the alignment means is minimized and a height of the filtering means is optimized with respect to an optical axis of the laser source.

15. (Original) The apparatus as recited in claim 9, wherein the heating means is assembled on the alignment means and the filtering means is disposed on the heating means and is assembled with a C-shape structure in order for heat to be conducted well.

16. (Original) The apparatus as recited in claim 9, wherein filtering means controls a transmission characteristic by virtue of a temperature control so as to maximize a wavelength monitoring capability such that a temperature change at a central portion of the filtering means and a change in a temperature difference of both ends of the filtering means are induced to thereby control a position of an etalon resonance peak of the filtering means and a bandwidth of the peak.

17. (Original) The apparatus as recited in claim 9, wherein filtering means controls the transmission characteristic by virtue of the temperature control so as to maximize the wavelength monitoring capability such that a left or a right slope of a transmission spectrum filtered at the filtering means is selected in order to minimize the temperature change.

18. (Original) The apparatus as recited in claim 9, wherein filtering means controls a transmission characteristic by virtue of a temperature control so as to maximize a wavelength monitoring capability such that the temperature of the filtering means is set higher than a maximum external temperature for using a wavelength stabilizer in case the wavelength stabilizer is exposed to an external temperature, thereby monitoring the wavelength regardless of the external temperature.

19. (Original) The apparatus as recited in claim 9, wherein an air layer is provided under the filtering means to thermally isolate the filtering means from an external object so that the temperature of the filtering means is controlled.

20. (Original) The apparatus as recited in claim 9, wherein the laser beam collimated by the collimation means is totally used for monitoring the optical output/wavelength or one portion of the laser beam split by an optical splitter which is disposed in a rear of the collimator means is used for monitoring the optical output/wavelength, the optical splitter splitting the collimated laser beam into said one portion and the other portion in which the said the other portion is used for an optical transmission.